

State Forests Research & Demonstration

Volume 1, Issue 4

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Special points of interest in this article:

- Stocking guidelines for multi-aged redwood stands
- Commercial thinning of coast redwood report
- Pre-commercial thinning report
- Redwood clonal study
- Legacy trees as habitat
- Ongoing and future projects

At the Redwood Region Forest Science Symposium (March 2004, Rohnert Park), 31% of the presentations and 26% of the posters were related to research from the Jackson Demonstration State Forest.

Redwood Research at Jackson

Jackson Demonstration State Forest is the leading research site for management in the coastal redwood ecosystem. A number of studies have been recently completed that contribute to the knowledge base of this uniquely California resource.

Pascal Berrill and Kevin O'Hara, PhD student and Associate Professor from UC Berkeley, have researched the growth dynamics of redwood and other species on Jackson. This research was funded through the state forest's competitive grants program. Their leaf area allocation model allows comparisons of various silvicultural approaches from single to multiple age class management and aids in the development of optimal stocking levels.



A 34-inch diameter redwood that is 42 years old.

One of the advantages to research on the Demonstration State Forests is the preservation of experimental sites over long time periods. This is well illustrated by the two recent reports produced by James Lindquist, retired silviculturist from the PSW Research Station. A commercial thinning designed experiment with four levels of density including a control was implemented in 1970. A report on the results from measurements in 1999 is now available (see publications request on last page) and a briefer version is to be found in the Redwood Region Forest Science Symposium Proceedings. An-

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Stewards of Soquel Launch Web Site

The Stewards of Soquel Forest are a "... group that works closely with the California Department of Forestry, and acts as a liaison between the public and CDF regarding issues of access, volunteerism, recreation, and more" (web site). Being located in Santa Cruz County near a large population, the Forest is heavily used by hikers, mountain bikers and equestrians.

The Stewards have created a web site to disseminate information about the Forest and their activities. The web site is still under construction but already has informative trail maps, descriptions of the Forest and a schedule for trail maintenance volunteers.

The web site may be accessed at <http://www.soquelforest.org>.

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other report, on pre-commercial thinning response after 19 years, is also available at these two sources.

Redwood is an unusual commercial conifer species in that it is managed using what foresters call coppice or sprout management. While redwood does produce seed and many redwood are planted from nursery stock, redwood sprouts are highly favored because they use the old root system to grow rapidly. As the new trees developed in this way are genetically identical to the parent, they are in fact clones. This is the topic of an article that is in press in the *American Journal of Botany* titled 'Incidence, size and spatial structure of clones in second growth stands of coast redwoods, *Sequoia sempervirens* (Cupressaceae),' by Vladimir Douhovnikoff and Richard S. Dodd, of UC Berkeley. A second article, which is more oriented to management has been submitted as a Redwood Science Symposium proceedings paper: 'Clonal spread in second growth stands of coast redwood, *Sequoia sempervirens*' also by Douhovnikoff and Dodd. This research was funded by CDF under the competitive research grants program.

The presence of a basal hollow, which only occur in legacy trees, was the feature that appeared to add the greatest habitat value to legacy trees and, therefore, to commercial forest stands." Mazurek and Zielinski (2004)

The wildlife habitat value of old growth trees retained in a stand after a regeneration harvest is the subject of research conducted by M.J. Mazurek and William J. Zielinski. Reprints of their paper, 'Individual legacy trees influence vertebrate wildlife diversity in commercial forests', *Forest Ecology and Management* (2004), may be obtained using the document request form on the last page of this newsletter. This research was a cooperative effort between the Redwood Sciences Lab, other agencies, forest landowners, nonprofit organizations, and CDF (see acknowledgement section of paper).

A number of additional studies related to coastal redwoods are currently in progress. A spotted owl telemetry study to determine the effects of intermediate harvests on owls is in its fifth year. This is a large west coast cooperative study being conducted by NCASI. Analysis of regeneration data to compare sprout versus planted seedlings is being conducted by Jackson DSF. A site index report by Bruce Krumland, covering all major California species, is in review. This report critiques existing site indexes and provides new ones using the latest methods and most complete data sets yet assembled. Finally, a re-measurement of the Railroad Gulch uneven-aged silvicultural experiment has been completed and will be analyzed this winter.

Redwood Sciences Lab Receives Partnership Award

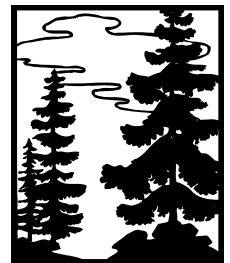
The Pacific Southwest Research Station, Redwood Sciences Lab (RSL) was the recipient of the CDF Partnership Award, which recognizes superior performance that demonstrates a commitment to the values and mission of CDF and a demonstrated ability to work cooperatively. The award is for the long-term commitment to the Caspar Creek Watershed Study, an internationally recognized research site on Jackson Demonstration State Forest. The RSL provides leading researchers, operating funds, laboratory and computer support, and facilities resources to Caspar Creek.

Editor's Note

You may have noticed that the State Forests Research and Demonstration Newsletter has changed in format and gone from color to black and white. Budget and staff reductions have necessitated this move. We feel it is important to keep you informed of the important work being done at your Demonstration State Forests and will endeavor to continue publishing four newsletters a year.

In an effort to bring you information that is of the greatest value to you our customers, we welcome suggestions for newsletter content, suggestions for research, and inquiries into past or current research or demonstration activities.

Contact Tim Robards at tim.robards@fire.ca.gov or 916-657-4778.



From the State Forests Archives...

Chris Rowney, State Forests Program Manager, was inventorying his office files and came across an article written in 1967 by Raymond Clar detailing a land exchange survey from 1927. Raymond Clar was a UC Berkeley forestry graduate in 1927, became Chief Deputy State Forester in 1941, and was Executive Secretary to the Board of Forestry from 1953 to 1969. You may also recognize him as the author of the books *California Government and Forestry (1959)* and *California Government and Forestry-II (1969)*. The following, in its entirety, is Clar's *Personal Notes on the Land Exchange Survey of 1927*.

To the psyche-scarred, bone weary veterans of the Society of Those Who Served Under Oscar Evans: GREETINGS.

This least of amateur cruisers will not attempt to match your tall tales of tall trees. What follows are a few facts and personal reminiscences of a unique cruise and topographic job of forty years ago. In old files it will probably be described as the Round Mountain Exchange. Currently the area is known as Latour State Forest.

"The California Board of Forestry had long sought to create State Forests from tax delinquent cutover parcels or any other means."

It was undertaken so that the Forest Service could acquire scattered internal parcels of State school land grants. Of 58,600 acres of such land in 16 National Forests, about 18,000 were timbered. The final shakedown involved 8,973 acres bearing about 109 million feet of timber. In 1923, enabling legislation made it possible to exchange a National Forest unit of comparable value.

The California Board of Forestry had long sought to create State Forests from tax delinquent cutover parcels or any other means. They hoped to balance forest practice work against a rapidly growing fire department. But that is another lengthy story. State Forester M. B. Pratt was vitally interested in the proposed land exchange, but legally only as a consultant to State Surveyor General W. S. Kingsbury, who supervised the State school lands.

In the spring of 1927, the District (Region) searched for the suitable exchange unit from the Stanislaus Forest northward. The choice boiled down to land around Tomhead Mountain or French Gulch on the Trinity or Snow Mountain or Latour Butte on the Lassen. In June Pratt, Kingsbury, Jay H. Price and the local Forest Supervisors casually looked over the sites. The Latour (or Round Mountain) area was selected.

Lassen Forest, under the greatly respected Supervisor W. G. Durbin, assumed the responsibility for getting a 10 percent cruise and topographic map. Marc W. Edmonds, then on the Lassen, became chief of the party. The Lassen also provided Assistant Rangers Ed Buel and Alvin Parker (brother of Bunky). The State Forester assigned Deputy State Forester W.



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H. Coupe (who had been Ranger of Coppervale District several years earlier) and State Ranger Clar who was two months out of college and currently assigned to Wieslander and type mapping out of the Experiment Station. Kingsbury contributed \$500 from which camp expenses were paid. On October 2, 1927, the party left Whitmore and jounced up to Bateman barn at Roaring Spring on the west edge of the unit. By a different route, the north edge of the Latour Block could be reached by car. The entire unit had no road and no man-made trails. Animals were plentiful, but we actually saw practically none. The common experience of bear crashing away from us in the dense brush was admittedly uncomfortable at times.

"Days passed and beards grew."

Ranger "Doc" Hufford brought us supplies during the six week job. One Red Hoag was hired as a cook and he was adequate. Marc's shaggy dog, Silver, completed the party. Silver enjoyed Red's liver pad pancakes, and we presume he enjoyed growling in his sleep at the singing coyotes throughout the night. One morning Marc looked at some unusually large panther tracks leading up to the camp and said, "No wonder Silver was between my legs all the way home last evening."

Bateman barn was well on its way toward Cow Creek, but we bedded down on its slanting floor. Neither Coupe nor Edmonds were endowed with a roaring sense of humor, and I could well have come to harm from laughing at their nocturnal battles with the pack rats who were proper preemption homesteaders. Marc was especially hostile to the little creatures and resentful of my attitude, no doubt because he had suffered a bitten finger and the gradual disappearance of the pine tree buttons from his regulation shirt. He also was very put out when I casually stirred the red lava dust on top of the sugar bowl into the sugar. So these 40 years, I have been trying to figure why half and half wasn't just as nourishing as pure red dust in one's coffee.

And then there was the Sunday morning he stood in the swooshing ice water out of Roaring Springs and bathed himself. The rest of us were just civilized and brave enough to make our morning ablutions by cracking the ice in the nearest stream and sort of wiggling our fingers in the beautiful clear water. Days passed and beards grew.

About November 1st we moved north to Cutter Place. Here we camped in the barn for little obvious reason. Most of the shake roof was gone and it has never been floored. Perhaps the loose siding and the comfort of a wall to wall carpet of horse manure had a practical appeal during such crisp weather. We were favored by lack of rain or snow, but along the high ridges on some mornings the metal notebooks, compass and steel tape were difficult to handle with bare hands. And each curled snowbrush leaf was a little ice water receptacle.



This was a glorious joy for youth and vigorous good health. But we worked every daylight hour and were becoming tired. I came to greatly admire the craftsmanship of the party chief since he often took me on special details. In searching for long lost corners or establishing outside boundary lines, I observed his special skill. Once we spent nearly all day clawing over snowbrush up to 15 feet high. He was dragging chain ahead and actually pacing chain lengths with uncanny accuracy. At that day's end, he sat on a mat of squaw carpet and surprised me by saying, "I am tired."

We finished and left about November 10. I hired a room in Redding, took a bath, persuaded a barber I didn't want my luxurious beard and boarded a Berkeley bound stage. Supervisor Durbin notified District Foresters S. B. Show on 14 November that the job was completed. Said the grand old man, "This survey was about one of the toughest propositions that I have ever known a timber survey crew to be put up against and I feel that Edmonds as well as the men working with him are to be congratulated..."

During the depression considerable work was done on the Latour Unit by the CCC. In 1945, the State Legislature appropriated \$100,000 to the Division of Forestry to purchase the property from the Department of Finance. With Governor Earl Warren's approval, Latour became a State Forest in fact.

Inventory of Old Growth Giant Sequoias

Mountain Home Demonstration State Forest is mandated to protect the old growth giant sequoias on the 4,800 acre Forest. Conservation of these ancient trees requires information on their numbers, locations, size and condition. A continuous forest inventory has been measured every five years on the Forest since 1970. This provides a statistical sample of the old trees but is not conducive to a rigorous demographic study over time. Vegetation type maps, soil maps, and permanent plots associated with research projects within second growth giant sequoias add to the information pool.

Initiated in 2001 by Forest Manager José Medina, a 100% inventory of old growth giant sequoias is about 30 percent complete. Budget reductions have slowed the project, but CDF is committed to completing the inventory when funds are again available.

Each old growth tree is mapped using a Geographic Positioning System (GPS) that uses satellites to obtain the latitude and longitude. The diameter at breast height and total height are measured. The heights are measured using a Haglōf Vertex III, which uses sound to accomplish range finding through brush and has a built-in clinometer that calculates the tree height using trigonometry.

The mapping of each tree will allow it to be relocated for subsequent re-measurements. This will allow size changes to be monitored and will allow the mortality rate to be estimated. This mortality data combined with young tree "old-growth recruitment" information will help us maintain a sustainable population of old giant sequoias.



Forestry Aide, Marcos Mejia, measuring the diameter of an old growth Giant Sequoia with a diameter tape on Mountain Home Demonstration State Forest.

Giant Sequoia Specimen to Hebrew University

Dr. Jeffrey Camhi, Director for the Nature Parks and Galleries at Hebrew University of Jerusalem, contacted José Medina, Mountain Home Forest Manager, in early 2003 to inquire about purchasing a giant sequoia round. Dr. Camhi had observed giant sequoia rounds at the Museums of Natural History in New York and London and desired to provide a similar exhibit at Hebrew University.

Similar requests of this sort are routinely honored at Mountain Home for educational purposes. The charge to the university was only the value of the wood. Dr. Camhi contracted a local Licensed Timber Operator to cut the piece from a fallen tree, haul and crate the round for shipment to Israel. The tree round was estimated to be well over 2,000 years old.



Dr. Jeffrey Camhi with Mountain Home round, Nature Parks & Galleries, Hebrew University, Jerusalem.

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- ☐ The Research and Demonstration Newsletter, published quarterly
- ☐ List of CA Forestry Notes. No. 1 – 116.
- ☐ List of Tree Notes #1 — 28, from CDF Forest Pests Program
- ☐ CA Forestry Report #1, Designing Watercourse Crossings for Passage of 100-year Flood Flows, Wood, and Sediment
- ☐ CA Forestry Report #2, Precommercial Stocking Control of Coast Redwood: A 17-year Status Report
- ☐ CA Forestry Report #3, Growth & Yield for the Whiskey Spring Redwood Commercial Thinning Study: A 29-year Status Report
- ☐ Individual legacy trees influence vertebrate wildlife diversity in commercial forests—Reprint

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